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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------------------|-------------|----------------------|---------------------|------------------|
| 10/679,671 | 10/06/2003 | Takuro Sugiura | 9281-4688 | 4072 |
| 7590 08/23/2005 | | | EXAMINER | |
| Brinks Hofer Gilson & Lione | | | LEE, GUIYOUNG | |
| P.O. Box 10395 | | | ART UNIT | |
| Chicago, IL 60610 | | | PAPER NUMBER | |
| | | | 2875 | |

DATE MAILED: 08/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

| | | | |
|------------------------------|-------------------------------|---------------------------------|--|
| Office Action Summary | Application No. 10/679,671 | Applicant(s) SUGIURA, TAKURO | |
| | Examiner Guiyoung Lee | Art Unit 2875 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 June 2005.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 16 and 17 is/are allowed.
- 6) ☒ Claim(s) 1-15 and 18-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Prelim./Amdt.

1. Receipt is acknowledged of the amendment filed 06/08/2005.
2. Applicant's arguments with respect to claims 1-23 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.
4. Claims 1-15 and 18-22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
5. Re claims 1-2: The phrase “ the other groove ranges from 1 to 1.005” is indefinite. If the ratio of the depth of the groove formed on a side apart from the end surface to the depth of the other groove is 1, the depth of the groove formed on the surface of the light guide is constant. However, according to the recitation in claim 1, the ratio of the depth of the groove is linearly increased with respect to the distance from the end surface to the groove (line 16-21, claim 1). The phrase is contradictory to the recitation. For examination purpose, it is assumed that the phrase means as “the other groove ranges from more than 1 to less than 1.005”.
6. Claims 3-15 are necessarily rejected because of their dependency.
7. Re claims 18: The phrase “ the depth of the groove is constant (line 27 in claim 18)” is indefinite. According to the recitation in claim 18, “ a depth of the groove is formed more deeply

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as the groove is positioned more distal from the end surface (lines 14-15 in claim 18)” The phrase is contradictory to the recitation.

8. Re claims 19 and 21: The phrase “ the pitch between the grooves is linearly varied with respect to the distance from the end surface disposed with the light emitting device to the groove (lines 11-13 in claim 19 and 21)” is indefinite. According to the recitation in claim 19, “ the pitch between the grooves is formed narrower in accordance with the distance from the end surface disposed with light emitting (lines 14-15 in claim 18)”, and according to the recitation in claim 21, “ the pitch between the grooves is formed narrower in accordance with the distance from the end surface disposed with light emitting (lines 14-15 in claim 18). The phrase is contradictory to the recitation. Claims 20 and 22 are necessarily rejected because of their dependency.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 19, 21, and 23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ohwada et al. (US 6,692,134 B2) in view of Nakamura (US 6,521,099 B2).

Re claim 19, 21 and 23: Ohwada discloses all the elements in claim 1 (See Fig. 2) except the limitation that “in a distribution of the depth of the groove with respect to the distance from the end surface disposed with the light emitting device to the groove, there are a first area where the

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depth of the groove linearly increased with respect to the distance from the end surface to the groove, and a second area formed apart from the light emitting device more than the first area in which an increasing rate of the depth of the groove with respect to the distance from the end surface is greater than that in the first area". Nakamura teaches a light guide plate having a plurality of grooves on the light guide plate, and the depth of the grooves in a first area is linearly increase with respect to the distance from the end surface to the groove (See the first part of the graph in Fig. 9A) and an increasing rate of the depth of the grooves in second area increase with respect to the distance from the end surface to the grooves is greater than that in the first area (See the second part of the graph in Fig. 9A). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the depth of the grooves in Ohwada's light guide to increase exponentially in a second area as taught by Nakamura in order to provide sufficient quantity of light in the second area of the light guide so that the light guide plate can receive uniform luminescent over the entire area of the light guide plate. Further, Nakamura teaches that the depth of the groove in the graph in Fig. 9A is given by an exponential function.

Allowable Subject Matter

11. Claims 16 and 17 are allowed.
12. Claim 1-15 and 18 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

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13. Claims 20 and 22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

With regard to claim 20, the prior art of record does not disclose the claimed limitation of “a pitch z (gm) of the groove and a distance x (mm) from the end surface disposed with the light emitting device satisfy expression $z = a_5X + b_5$, where a_5 is larger than 0 and less than 14, and b_5 ranges from 180 to 250. With regard to claim 22, the prior art of record does not disclose the claimed limitation of “a pitch z (um) of the groove and a distance x (mm) from the end surface disposed with the light emitting device satisfy expression $z = a_6X + b_6$, where a_6 ranges from -14 to 0, and b_6 ranges from 280 to 350.

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Guiyoung Lee whose telephone number is 571-272-2374. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra O'Shea can be reached on 571-272-2378. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

LGY



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